

## Abstract

This invention provides methods of enhancing plant growth or yield, comprising exposing soil to hydrogen gas ( $H_2$ ), and growing plants in the soil. The  $H_2$  gas employed can be generated by electrolysis of water, produced by  $H_2$  evolving microorganisms, and/or  
5 produced by legumes. In accordance with the invention, soil can be exposed to  $H_2$  and plants then grown in it, or  $H_2$  can be applied directly to soil in which plants are already growing. In one embodiment, the invention comprises obtaining an aqueous extract from  $H_2$ -treated soil, and applying the extract to soil, seeds, and or plant roots.